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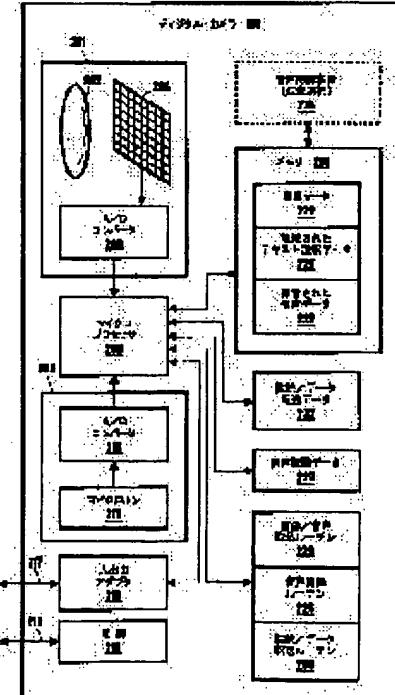
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(54) DIGITAL CAMERA, OPERATING METHOD, RECORDING MEDIUM READ BY COMPUTER, COMPUTER SYSTEM AND AUTOMATIC DIGITAL PHOTOGRAPH

(57) Abstract:

PROBLEM TO BE SOLVED: To directly and automatically transfer image data from a digital camera to a computer or a server by providing an input/output adaptor or the like that sets up communication connection with a destination system via a network and can transmit image data to the destination system.

SOLUTION: A digital camera 102 is provided with the input/output adaptor 216 that includes a data connector and a connector 217 that is used to transfer data with the camera via a data cable. In the case that the connection of the digital camera 102 to an external communication unit is detected, a microprocessor 208 executes a connection/data transfer routine 230 to set up communication connection via the Internet to a



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destination system. The communication connection is set up by using connection/data transfer data 282 including an IP address of the destination system, a sign-on script, a password and a transfer destination directory or the like.

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CLAIMS

[Claim(s)]

[Claim 1] The digital camera contain the I/O adapter which can operate so that light including a picture accepts, the communication connection by the memory which can operate, and the destination system detect that connection with a network was established and mind the aforementioned network is established so that it may remember that the picture sensing equipment which can operate, and the aforementioned image data output the image data showing the aforementioned picture, and the image data by which storage was carried out [aforementioned] may transmit to the aforementioned destination system.

[Claim 2] The digital camera according to claim 1 whose aforementioned network is the Internet.

[Claim 3] The digital camera according to claim 2 with which the aforementioned connection with the aforementioned network is established through a radio communications system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

[Claim 4] The digital camera according to claim 2 with which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

[Claim 5] Furthermore, the digital camera according to claim 2 with which sound can receive, and the aforementioned input / output adapter can transmit further the voice data by which storage was carried out [aforementioned] to the aforementioned destination system including the 2nd memory which can operate so that the sound data showing the aforementioned sound may be outputted, the aforementioned sound may be utterance, the aforementioned sound data may be voice data and the aforementioned voice data may memorize further including the sound sensing equipment which can operate.

[Claim 6] The digital camera according to claim 2 provided with external power connection and communication connection by the cradle assembly.

[Claim 7] The method for operating a digital camera of including the step which outputs the image data which accepts light including a picture and expresses the aforementioned picture, the step which memorizes the aforementioned image data, the step which detect that connection with a network was established, the step which establish in the communication connection with the destination system through the aforementioned network, and the step which transmit to the aforementioned destination system in the image data by which storage was carried out [aforementioned].

[Claim 8] The way according to claim 7 the aforementioned network is the Internet.

[Claim 9] The method according to claim 8 by which the aforementioned connection with the aforementioned network is established through a radio communications system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

[Claim 10] The method according to claim 8 by which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

[Claim 11] The method according to claim 8 of containing further the step which receives sound, the step which outputs the sound data showing the aforementioned sound whose sound data the

aforementioned sound is utterance and are voice data, the step which memorizes the aforementioned voice data, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

[Claim 12] The method according to claim 8 provided with external power connection and communication connection by the cradle assembly.

[Claim 13] The digital camera contain the means for outputting the image data which accepts light including a picture and expresses the aforementioned picture, the means for memorizing the aforementioned image data, the means for detecting that connection with a network was established, the means for establishing the communication connection with the destination system through the aforementioned network, and the means for transmitting the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

[Claim 14] It is the computer-readable record medium with which the computer program instruction which can be executed by the processor of a digital camera was recorded. The procedure to which the image data to which the aforementioned computer program instruction makes light including a picture accepted in the aforementioned digital camera, and expresses the aforementioned picture with it is made to output, The procedure of memorizing the aforementioned image data, and the procedure of detecting connection with a network having been established, The record medium which it is for performing the procedure of establishing the communication connection with the destination system through the aforementioned network, and the procedure of transmitting the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

[Claim 15] Computer system which contains the equipment which can operate so that the communication connection through a network with the digital camera memorized in it in image data may be established, and the image data by which storage was carried out [aforementioned] from the equipment which can operate, and the aforementioned digital camera may be received.

[Claim 16] Computer system according to claim 15 whose aforementioned network is the Internet.

[Claim 17] Computer system according to claim 16 by which the aforementioned digital camera is connected to the aforementioned network through a radio communications system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

[Claim 18] Computer system according to claim 16 by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

[Claim 19] Computer system according to claim 16 which contains the equipment which can operate so that the aforementioned digital camera may receive the voice data with which the storage of the aforementioned computer system was further carried out [aforementioned] from the aforementioned digital camera by memorizing voice data in it further.

[Claim 20] Computer system according to claim 16 by which the aforementioned digital camera is provided with external power connection and communication connection with a cradle assembly.

[Claim 21] How to operate the computer system connected to the aforementioned network containing the step which establishes the communication connection through a network with the digital camera which had image data memorized in it, and the step which receives the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

[Claim 22] The way according to claim 21 the aforementioned network is the Internet.

[Claim 23] The method according to claim 22 by which the aforementioned digital camera is connected to the aforementioned network through a radio communications system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

[Claim 24] The method according to claim 22 by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

[Claim 25] The way according to claim 22 the aforementioned digital camera contains the step which receives the voice data with which voice data were memorized and the storage of the aforementioned method was further carried out [aforementioned] from the aforementioned digital camera into it.

[Claim 26] The method according to claim 22 by which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

[Claim 27] Computer system including the means for establishing the communication connection through a network with the digital camera which had image data memorized in it, and the means for receiving the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

[Claim 28] The record medium which are a computer-readable medium and a computer-readable record medium with which the computer program instruction which can be executed by the processor in a digital camera was recorded, and it is for performing the procedure of establishing the communication connection whose aforementioned computer program instruction minds a network with the digital camera which had image data memorized in it, and the procedure receive the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

[Claim 29] The automobile which contains the equipment which can operate so that the digital camera which had image data memorized in it may provide with power connection and communication connection, the communication connection between the equipment which can operate, and the aforementioned digital camera and a network may establish, and the image data by which storage was carried out [aforementioned] at destination computer system may transmit through the aforementioned network from the equipment which can operate, and the aforementioned digital camera.

[Claim 30] The automobile which includes the means for transmitting the image data by which storage was carried out [aforementioned] at destination computer system through the aforementioned digital camera to the means for providing with power connection and communication connection the digital camera which had image data memorized in it, the means for establishing the communication connection between the aforementioned digital camera and a network, and the aforementioned network.

[Claim 31] The digital photograph characterized by providing the following. The step to which the image data which is made to accept light including a picture in a digital camera, and expresses the aforementioned picture with it is made to output. The step which memorizes the aforementioned image data within the aforementioned digital camera. The step which detects that the connection with a network from the aforementioned digital camera was established. Image data memorized by aforementioned destination computer made by performing the step which establishes the communication connection through the aforementioned network between the aforementioned digital camera and destination computer system, the step which transmits the image data by which storage was carried out [aforementioned] from the aforementioned digital camera to the aforementioned destination computer system, and the step which memorizes the image data by which reception was carried out [aforementioned] by the aforementioned destination computer system.

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DETAILED DESCRIPTION

[Detailed description]

[0001]

[The technical field to which invention belongs] this invention relates to the digital camera which uploads image data automatically, when it connects with a network in detail about electrophotography.

[0002]

[Prior art] The digital camera has spread through the photograph of both an expert and an amateur. Usually, image data is memorized by the memory or the memory card which can be removed in a camera at the time of photography. When memory fills, a memory card can be removed, and it can exchange for another card, or image data can be transmitted to a computer from a camera. however, a memory card — small — high, in order to memorize many photographs, such as that a photograph of etc. is taken during a travel, although it is lightweight — it elapses and is not practical One of the technique which memorizes a lot of photographs during a travel is transmitting image data to a portable computer or a laptop computer. However, many camera users have noticed it being inconvenient not to own the laptop computer or to take a travel with a laptop computer only for this purpose. Furthermore, in order to use the photograph, a camera user usually has to transmit image data to a domestic computer anyway. The need for technique that the digital camera user under travel enables it to transmit image data to a domestic computer or a domestic server directly automatically from a digital camera has arisen.

[0003]

[Object of the Invention]

[The means for solving a technical problem] this invention is a digital camera which transmits image data to the computer system or the server of the destination automatically directly from a digital camera. The I/O adapter which can operate is contained so that the light which includes a picture image in this invention may be accepted, the communication connection between the memory which can operate, and the destination system which detects that the connection with a network was established and minds a network may be established so that it may remember that the picture image sensing equipment which can operate, and image data output the image data showing a picture image, and the memorized image data may be transmitted to a destination system.

[0004] As for the network used, it is desirable that it is internet. The connection with a network is establishable through a cable modem, the unsymmetrical digital subscriber's line, or a local area network. External power connection and communication connection can be offered with a cradle assembly.

[0005]

[Gestalt of implementation of invention] The digital camera system 100 by this invention is shown in drawing 1. The digital camera 102 and the cradle assembly 104 are included in the digital camera system 100. The digital camera 102 is received in the cradle assembly 104, and the cradle 106 which enables it to connect a cradle to a camera is contained in it. The power connector 108 and the data connector 110 are contained in the cradle assembly 104, and these



(2)

connectors offer the power connection and data connection with the digital camera 102 during a recharge, data transfer, and speech recognition processing. Instead, connection of the power connector 108 and the data connector 110 is combinable with a single connector.

[0006] Power is supplied to the power connector 108 by power 112 through a power cable 114. Power 112 can be considered as wall tapestry equipment, an automobile power adapter, or cell formula equipment. Data can be transmitted through the data cable 116 connected to the data connector 110, and the data cable 116 offers the communication connection with communication devices, such as the radio system 120, the cable modem 122, the unsymmetrical digital subscriber's-line (ADSL) modem 124, a local area network and an interface device 126, the ISDN (ISDN) interface device 128, or the voice circuit modem 130. The modem and radio transceiver which were connected to the radio network in communication are contained in the radio system 120. Recharge processing and data transfer processing are performed, when a camera is returned to a cradle, after taking a photograph.

[0007] As for this invention, it is advantageous that it is separated from the final destination of the taken photograph while the user of a camera is traveling etc. especially when using it for remote data transfer. For example, a hotel can provide a visitor with the cradle assembly 104 as either of the services which need the service or surcharge contained in accommodation charges. By this, when a visitor returns to the cella, a photograph [finishing / photography] can be transmitted. With some speed of the connection offered, a transfer of a photograph may become processing which time requires. Data transfer can be attained, when convenient, while the user of a camera is sleeping by forming a cradle in the cella of a hotel.

[0008] As another example, the cradle assembly 104 and the radio system 120 can be formed in automobiles, such as a camera user's automobile, or a rental car. Many rental cars have an usable wireless telephone in a loan. The cradle assembly 104 can be lent out to a convenient thing simultaneously with it. By forming the cradle assembly 104, the convenient data transfer under travel becomes possible. A camera user returns to an automobile, puts a camera on a cradle, and drives to the next destination. Data can be transmitted, while an user is not in in the car, when it is transmitted while the user is driving to the convenient thing, or sufficient security is prepared.

[0009] In the one embodiment, the radio system 120, the cable modem 122, ADSL Modem 124, a local area network and an interface device 126, the ISDN interface device 128, and the voice circuit modem 130 offer the direct access to the computer system or the server (below, the destination system is called) 132 of the destination through internet 134. The destination system 132 is usually the program formula computer system of common knowledge, such as a personal computer, a work station, a minicomputer, and a mainframe. Such computer system usually executes the computer and program instruction carried out within computer-readable mediums, such as RAM, ROM, a flash memory, a floppy disk, a hard disk, an optical disk, and a magnetic tape, as everyone knows.

[0010] In another embodiment, the radio system 120, the cable modem 122, ADSL Modem 124, a local area network and an interface device 126, the ISDN interface device 128, and the voice circuit modem 130 offer the access to Intermediate System 136. An Intermediate System can be made into a server or the computer system of other common knowledge, and it is used for improving the facilities and speed of data transfer from the digital camera 102. For example, the cradle assembly which a hotel offers is connectable with an interval server system through a local area network. Data can be transmitted to an interval server system from a camera at high speed, and can be transmitted to a destination system in good type in all after that.

[0011] As another example, many automobiles come to equip computer system at the future. Data can be transmitted to automobile computer system from a camera at high speed, and can be transmitted to a destination system in good type in all after that. By this, a camera user can transmit data now quickly from a camera, and can take more photographs now. Automobile computer system can transmit data, while the user is continuing use of a camera after that.

[0012] Instead, it is possible not to use a cradle 106. Instead of a cradle, the power connector 108 and the data connector 110 are directly connectable with the digital camera 102. It can connect separately or these connectors can be combined with a single assembly.

[0013] The digital camera 102 by this invention is shown in drawing 2. The image sensing equipment 201 is included, and this image sensing equipment 201 accepts the light containing an image in the digital camera 102, and outputs the digital image data showing the image to it. The lens 202 which doubles the focus of an image with the picture image sensor 204 is usually contained in the image sensing equipment 201. Although the picture image sensor 204 is usually charge coupled devices (CCD) or a complementary-type metal-oxide-semiconductor (CMOS) device, the signal showing a picture image is outputted to A/D converter 206, and by digitizing the signal, A/D converter 206 is changed into digital image data, and outputs digital image data to a microprocessor 208. The voice sensing equipment 209 is also included, and this voice sensing equipment 209 accepts voice, such as utterance, in the digital camera 102, and outputs the digital voice data showing the voice to it. The signal with which a microphone 210 senses the voice which is the usually uttered word, and the sensed voice is expressed is outputted to A/D converter 212, and this A/D converter 212 digitizes the signal, and outputs digital voice data to a microprocessor 208. A microprocessor 208 memorizes digital image data and digital voice data in memory 214. Memory 214 is usually semiconductor memory, such as RAM and a flash memory. Memory 214 can be considered as the hard drive which can include in the digital camera 102, can make [of a flash memory card etc. / which can be removed] memory 214 nonvolatile, and was attached in the inside of disk storages, such as a floppy disk or other storage driving gears which can be removed, and the digital camera 102, or this.

[0014] The input / output adapter 216 containing the connector 217 for the data transfer between the cameras through the data connector 110 and the data cable 116 is contained in the digital camera 102. A cell, adjustment and a recharge circuit, and the power 218 containing a connector 219 are also contained in the digital camera 102. Power can be supplied now to the digital camera 102 by power 112 through the power cable 114 and the power connector 108 with this. The components of other common knowledge, such as a viewfinder and a shutter switch, are not illustrated.

[0015] A microprocessor 208 memorizes each image data of the taken photograph to the image data and the block 220 in memory 214. Usually, the image data within image data and the block 220 is compressed in order to save a room. A microprocessor 208 is memorized to the voice data and the block 222 which had recorded voice (utterance) data relevant to each of the memorized picture image recorded. Usually, the recorded voice data is also compressed. The text data relevant to each of the memorized picture image are also memorized by the text comment data block 223 as which it has been recognized in memory 214. Speech recognition can be performed by the voice recognition unit 224 using the speech recognition data 225, and speech recognition can be performed by the microprocessor 208 which performs the speech recognition routine 226 using the speech recognition data 225.

[0016] The software routine performed by the microprocessor 208 is also contained in the digital camera 102. A picture image / voice taking-in routine 228 controls compression of the data within photography of a digital photograph, the recording of a voice comment, image data and a block 220, and the voice data and the block 222 that were recorded, and processing of storage. The speech recognition routine 226 controls processing of storage of a recognition of the voice comment memorized by the recorded voice data and the block 222, and the text comment to the text comment data block 223 the text comment has been generated and recognized to be.

[0017] Connection / data transfer routine 230 controls processing of the data transfer from the digital camera 102 which uses connection / data transfer data 232. The data used for an establishment of the connection with the destination system 132, Intermediate System 136, or its both are contained in connection / data transfer data 232. For example, identification of the access telephone number, and internet and a service-provision contractor (ISP), ISP account number, a password, Internet Protocol (IP) or other network addresses, an e-mail address, URL (Uniform Resource Locator), a directory and a pathname, the credit card account number, etc. can be included in connection / data transfer data 232. A command script etc. can also include the data for controlling connection and processing of data transfer in connection / data transfer data 232.

[0018] An user can input connection / data transfer data 232, or they can be constituted

automatically. For example, an user can input the access telephone number, ISP account number, the destination system address, etc. An user can use the voice command recognized by the speech recognition fraction of a camera, using the configuration program it runs by the computer system connected to the camera, using control of a camera and a menu, and can input data. This configuration can be made flexible according to a wish. For example, an user can input the destination which is different about the group of every photograph and a photograph, and an user can input two or more destinations. An user can specify transmitting all photographs to the computer system of an user's home, carrying out electronic mail of the photograph of the different selected group to the person as whom others were chosen.

[0019] Instead, the service-provision contractor who manages the vendor or Intermediate System of a camera can transmit connection / data transfer data 232 to a camera, and can constitute connection and data transfer. Connection / data transfer data 232 is usually memorized by RAM or non-volatile memory of the digital camera 102.

[0020] Usually, although the speech recognition routine 226, the picture image / voice taking-in routine 228, and the connection / data transfer routine 230 are memorized by computer-readable mediums, such as non-volatile memory, such as ROM and a flash memory, instead, it is memorizable to other computer-readable mediums, such as RAM, a floppy disk, a hard disk, an optical disk, and a magnetic tape.

[0021] The digital camera system 100 is operated in the type shown in drawing 3. At step 302, a camera is removed from a cradle 106. At step 304, one or more photographs are taken using a camera, and one or more voice comments are recorded. In order for a microprocessor 208 to take a photograph of each of a photograph, to compress image data and to memorize image data to the image data and the block 220 of memory 214, it performs a picture image / voice taking-in routine 228. Similarly, a microprocessor 208 records each of a voice comment, compresses voice data, and in order to memorize voice data to the voice data and the block 222 with which memory 214 was recorded, it performs a picture image / voice taking-in routine 228.

[0022] The digital camera 102 is applicable to photography of a photograph, and the recording of a voice comment to a completion of a photography session. In the ground which a photography session completes, the cell charge to which memory 214 filled decreased, or an user is able to finish taking a desired photograph to it. At the time of a completion of a session, at step 306, the digital camera 102 is put on a cradle 106, and both the power connector 108 and the data connector 110 are connected to the digital camera 102 by this. When not using a cradle 106, you have to connect the power connector 108 and the data connector 110 to the digital camera 102.

[0023] A microprocessor 208 detects that the digital camera 102 was connected to the external communication device. Either of the well-known technique can attain this detection. For example, an input / output adapter 216 can detect presence of the data signal on a connector 217, and can send a signal to a microprocessor 208. The technique of other common knowledge can also be used.

[0024] When it detects that the digital camera 102 was connected to the external communication device, a microprocessor 208 performs connection / data transfer routine 230 at step 308, in order to establish the communication connection through the internet with the destination system 132. It depends for the detail of connection processing on the concrete modality of external communication device in use. Communication connection is established using the connection / data transfer data 232 which can contain the IP address of the destination system 132 and sign-on script, a password, a transfer destination directory, etc.

[0025] When a connection step is completed, a microprocessor 208 transmits the image data and text data which were memorized to the destination system 132 at step 310. This transfer can be performed by using standard transfer protocols, such as a well-known file transfer protocol (FTP). When a transfer is completed, the communication connection between the digital camera 102 and the destination system 132 is ended automatically. Furthermore, after transmitting image data and text data, they can be deleted from memory 214 and can release memory because of reuse.

[0026] When data transfer is not successful or communication connection is lost, the digital

camera 102 re-establishes connection automatically, and repeats whether a transfer is resumed.

[0027] It is included in the characteristic feature of an addition of this invention that a camera user can specify now processing of image data, text data, and voice data for every photograph. For example, an user can specify whether the text data or voice data relevant to the photograph to transmit is transmitted. Furthermore, an user can specify whether the transmitted data are deleted from memory 214. If another characteristic feature is used, an user can specify the threshold of the number of sheets of the photograph memorized by memory 214. When a number fewer than a threshold of photographs are memorized by memory 214, the attempt which is going to transmit the image data, the text data, or voice data of the photograph is not performed.

[0028] The example of a format of the data memorized by memory 214 is shown in drawing 4. In this example, the image data from each taken photograph is memorized as a block of image data. For example, the image data from a photograph 1 is memorized by block 402, and the image data from photograph N is memorized by block 404. All blocks 402 of image data or 404 is memorized continuously. The recorded voice data relevant to each of the taken photograph is memorized as a block of the recorded voice data. For example, the voice data recorded from the voice comment relevant to a photograph 1 is memorized by block 406, and the voice data recorded from the voice comment relevant to photograph N is memorized by block 408. All blocks 406 of the recorded voice data or 408 is memorized continuously. The changed text comment data relevant to each of the taken photograph are memorized as a block of text data. For example, the changed text comment data relevant to a photograph 1 are memorized by block 410, and the changed text comment data relevant to photograph N are memorized by block 412. All blocks 410 of the changed text comment data or 412 is memorized continuously.

[0029] A format of another example of the data memorized by memory 214 is shown in drawing 5. The image data from each photograph, the recorded voice data relevant to each photograph, and the changed text comment data relevant to each photograph are memorized as a block of data like drawing 4, respectively. For example, the image data from a photograph 1 is memorized as block 502, the recorded voice data relevant to a photograph 1 is memorized as block 504, and the changed text data relevant to a photograph 1 are memorized as block 506. However, in this example, the image data from a photograph is continuously remembered to be the recorded voice data and the changed text data relevant to the photograph. Therefore, as for blocks 502, 504, and 506, all are continuously memorized in relation to a photograph 1. Similarly, as for blocks 508, 510, and 512, all are continuously memorized in relation to photograph N.

[0030] Drawing 4 and drawing 5 are only two of the examples of the data-storage format which can be used. All formats of the others which maintain the relation between image data, the recorded voice data, and the changed text data are usable similarly. For example, a well-known file system can be used.

[0031] As a conclusion, the following matters are indicated about the configuration of this invention.

[0032] (1) The digital camera contain the I/O adapter which can operate so that the light containing a picture image accepts, the communication connection by the memory which can operate, and the destination system which detects that the connection with a network was established and minds the aforementioned network is established so that it may remember that the picture image sensing equipment which can operate, and the aforementioned image data output the image data showing the aforementioned picture image, and the image data by which storage was carried out [aforementioned] may transmit to the aforementioned destination system.

(2) A digital camera given in the above (1) whose aforementioned network is internet.

(3) A digital camera given in the above (2) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(4) A digital camera given in the above (2) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(5) Further, receive sound, and the sound sensing equipment which can operate is included so that the sound data showing the aforementioned sound may be outputted. The aforementioned sound is utterance and the aforementioned sound data are voice data. further A digital camera given in the above (2) which can transmit the voice data with which the storage of the aforementioned input / output adapter was further carried out [aforementioned] including the 2nd memory which can operate so that the aforementioned voice data might be memorized to the aforementioned destination system.

(6) A digital camera given in the above (2) provided with external power connection and communication connection by the cradle assembly.

(7) The technique for operating a digital camera containing the step which outputs the image data which accepts the light containing a picture image and expresses the aforementioned picture image, the step which memorizes the aforementioned image data, the step which detect that the connection with a network was established, the step which establish the communication connection with the destination system through the aforementioned network, and the step which transmit the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(8) Technique given in the above (7) whose aforementioned network is internet.

(9) Technique given in the above (8) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(10) Technique given in the above (8) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(11) Technique given in the above (8) which contains further the step which receives sound, the step which outputs the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the step which memorizes the aforementioned voice data, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

(12) Technique given in the above (8) provided with external power connection and communication connection by the cradle assembly.

(13) The digital camera containing the means for outputting the image data which accepts the light containing a picture image and expresses the aforementioned picture image, the means for memorizing the aforementioned image data, the means for detecting that the connection with a network was established, the means for establishing the communication connection with the destination system through the aforementioned network, and the means for transmitting the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(14) A digital camera given in the above (13) whose aforementioned network is internet.

(15) A digital camera given in the above (14) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(16) A digital camera given in the above (14) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(17) A digital camera given in the above (14) which includes further the means for receiving sound, the means for outputting the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the means for memorizing the aforementioned voice data, and the means for transmitting the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

(18) A digital camera given in the above (14) provided with external power connection and communication connection by the cradle assembly.

(19) Kept on record on the computer-readable medium and the aforementioned computer-readable medium. The computer and program instruction which can be executed by the processor of a digital camera are included. The step to which the image data to which

aforementioned computer and program instruction make the light containing a picture image accepted in the aforementioned digital camera, and expresses the aforementioned picture image with it is made to output, The step which memorizes the aforementioned image data, and the step which detects that the connection with a network was established, The computer program product for operating a digital camera which it is for performing the step which establishes the communication connection with the destination system through the aforementioned network, and the step which transmits the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(20) A computer program product given in the above (19) whose aforementioned network is internet.

(21) A computer program product given in the above (20) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(22) A computer program product given in the above (20) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(23) A computer program product given in the above (20) which contains further the computer and program instruction for performing the step which receives sound, the step which outputs the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the step which memorizes the aforementioned voice data, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

(24) A computer program product given in the above (20) provided with external power connection and communication connection by the cradle assembly.

(25) Computer system which includes the equipment which can operate so that the image data by which storage was carried out [aforementioned] from the equipment which can operate, and the aforementioned digital camera may be received so that the communication connection through the network with the digital camera memorized in it in image data may be established.

(26) Computer system given in the above (25) whose aforementioned network is internet.

(27) Computer system given in the above (26) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(28) Computer system given in the above (26) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(29) Computer system given in the above (26) whose aforementioned digital camera includes the equipment which can operate so that the voice data with which voice data were memorized in it and the storage of the aforementioned computer system was further carried out [aforementioned] from the aforementioned digital camera may be received.

(30) Computer system given in the above (26) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(31) How to operate the computer system connected to the aforementioned network containing the step which establishes the communication connection which minds in it the network with the digital camera which had image data memorized, and the step which receives the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(32) Technique given in the above (31) whose aforementioned network is internet.

(33) Technique given in the above (32) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(34) Technique given in the above (32) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(35) Technique given in the above (32) whose aforementioned digital camera contains the step which receives the voice data with which voice data were memorized in it and the storage of the aforementioned technique was further carried out [aforementioned] from the aforementioned

digital camera.

(36) Technique given in the above (32) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(37) Computer system containing the means for establishing the communication connection which minds in it the network with the digital camera which had image data memorized, and the means for receiving the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(38) Computer system given in the above (37) whose aforementioned network is internet.

(39) Computer system given in the above (38) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(40) Computer system given in the above (38) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(41) Computer system given in the above (38) containing the means for the aforementioned digital camera receiving the voice data with which voice data were further memorized in it, and the storage of the aforementioned computer system was further carried out [aforementioned] from the aforementioned digital camera.

(42) Technique given in the above (38) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(43) The computer-readable medium and the aforementioned computer-readable medium kept on record. The computer and program instruction which can be executed by the processor in a digital camera are included. The step which establishes the communication connection whose aforementioned computer and program instruction mind in it the network with the digital camera which had image data memorized, The computer program product for operating the computer system connected to the network which it is for performing the step which receives the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(44) A computer program product given in the above (43) whose aforementioned network is internet.

(45) A computer program product given in the above (44) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(46) A computer program product given in the above (44) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(47) A computer program product given in the above (44) containing the computer and program instruction for the aforementioned digital camera performing the step which receives the voice data with which voice data were further memorized in it, and the storage of the aforementioned computer program product was further carried out [aforementioned] from the aforementioned digital camera.

(48) A computer program product given in the above (44) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(49) The automobile which includes the equipment which can operate in destination computer system through the aforementioned network from the equipment which can operate, and the aforementioned digital camera so that the image data by which storage was carried out [aforementioned] may be transmitted so that the digital camera which had image data memorized in it may be provided with power connection and communication connection and the communication connection between the equipment which can operate, and the aforementioned digital camera and a network may be established.

(50) An automobile given in the above (49) whose aforementioned network is internet.

(51) An automobile given in the above (50) whose aforementioned equipment which can operate is a radio structure-of-a-system element as the image data by which storage was carried out [aforementioned] is transmitted to destination computer system through the aforementioned network from the aforementioned equipment which can operate, and the aforementioned digital

camera so that the communication connection between the aforementioned digital camera and a network may be established.

(52) An automobile given in the above (50) whose aforementioned equipment which can operate contains interval computer system so that the image data by which storage was carried out [aforementioned] may be transmitted to destination computer system through the aforementioned network from the aforementioned digital camera.

(53) An automobile given in the above (50) whose aforementioned digital camera has voice data memorized in it, and it includes further the equipment which can operate so that the aforementioned automobile may transmit further the voice data by which storage was carried out [aforementioned] to destination computer system through the aforementioned network from the aforementioned digital camera.

(54) An automobile given in the above (50) whose aforementioned equipment which can operate includes cradle assembling so that the aforementioned digital camera may be provided with power connection and communication connection.

(55) The automobile which includes the means for transmitting the image data by which storage was carried out [aforementioned] at destination computer system through the aforementioned digital camera to the means for providing with power connection and communication connection the digital camera which had image data memorized in it, the means for establishing the communication connection between the aforementioned digital camera and a network, and the aforementioned network.

(56) An automobile given in the above (49) whose aforementioned network is internet.

(57) An automobile given in the above (50) the aforementioned means for establishing the communication connection between the aforementioned digital camera and a network and whose aforementioned means for transmitting the image data by which storage was carried out [aforementioned] to destination computer system through the aforementioned network from the aforementioned digital camera are radio structure-of-a-system elements.

(58) An automobile given in the above (50) whose aforementioned means for transmitting the image data by which storage was carried out [aforementioned] contains interval computer system in destination computer system through the aforementioned network from the aforementioned digital camera.

(59) An automobile given in the above (50) whose aforementioned automobile the aforementioned digital camera has voice data memorized in it, and includes further the means for transmitting the voice data by which storage was carried out [aforementioned] in destination computer system through the aforementioned digital camera to the aforementioned network.

(60) An automobile given in the above (50) whose aforementioned means for offering power connection and communication connection includes a cradle assembly in the aforementioned digital camera.

(61) The step to which the image data which is made to accept the light containing a picture image in a digital camera, and expresses the aforementioned picture image with it is made to output, The step which memorizes the aforementioned image data within the aforementioned digital camera, The step which detects that the connection with a network was established from the aforementioned digital camera, The step which establishes the communication connection through the aforementioned network between the aforementioned digital camera and destination computer system, The step which transmits the image data by which storage was carried out [aforementioned] from the aforementioned digital camera to the aforementioned destination computer system, The digital photograph containing the image data memorized by aforementioned destination computer made by performing the step which memorizes the image data by which the reception was carried out [aforementioned] by the aforementioned destination computer system.

(62) A digital photograph given in the above (61) whose aforementioned network is internet.

(63) A digital photograph given in the above (62) by which the aforementioned connection with the aforementioned network is established through communication system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(64) A digital photograph given in the above (62) to which the image data by which storage was

carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(65) The step which receives sound using the aforementioned digital camera, The step which outputs the sound data showing the aforementioned voice whose sound data the aforementioned sound is utterance and are voice data, The step which memorizes the aforementioned voice data with the aforementioned digital camera, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system from the aforementioned digital camera, A digital photograph given in the above (62) made by performing further the step which memorizes the voice data which carried out [aforementioned] the reception by the aforementioned destination computer system.

(66) A digital photograph given in the above (62) provided with external power connection and communication connection by the cradle assembly.

[Translation done.]

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TECHNICAL FIELD

[The technical field to which invention belongs] this invention relates to the digital camera which uploads image data automatically, when it connects with a network in detail about electrophotography.

[Translation done.]

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PRIOR ART

[Prior art] The digital camera has spread through the photograph of both an expert and an amateur. Usually, image data is memorized by the memory or the memory card which can be removed in a camera at the time of photography. When memory fills, a memory card can be removed, and it can exchange for another card, or image data can be transmitted to a computer from a camera. However, a memory card — small — high, in order to memorize many photographs, such as that a photograph of etc. is taken during a travel, although it is lightweight — it elapses and is not practical. One of the techniques which memorizes a lot of photographs during a travel is transmitting image data to a portable computer or a laptop computer. However, many camera users have noticed it being inconvenient not to own the laptop computer or to take a travel with a laptop computer only for this purpose. Furthermore, in order to use the photograph, a camera user usually has to transmit image data to a domestic computer anyway. The need for a technique that the digital camera user under travel enables it to transmit image data to a domestic computer or a domestic server directly automatically from a digital camera has arisen.

[Translation done.]

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TECHNICAL PROBLEM

[Object of the Invention]

[Translation done.]

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MEANS

[The means for solving a technical problem] this invention is a digital camera which transmits image data to the computer system or the server of the destination automatically directly from a digital camera. The I/O adapter which can operate is contained so that the light which includes a picture image in this invention may be accepted, the communication connection between the memory which can operate, and the destination system which detects that the connection with a network was established and minds a network may be established so that it may remember that the picture image sensing equipment which can operate, and image data output the image data showing a picture image, and the memorized image data may be transmitted to a destination system.

[0004] As for the network used, it is desirable that it is internet. The connection with a network is establishable through a cable modem, the unsymmetrical digital subscriber's line, or a local area network. External power connection and communication connection can be ciffered with a cradle assembly.

[0005]

[Gestalt of implementation of invention] The digital camera system 100 by this invention is shown in drawing 1. The digital camera 102 and the cradle assembly 104 are included in the digital camera system 100. The digital camera 102 is received in the cradle assembly 104, and the cradle 106 which enables it to connect a cradle to a camera is contained in it. The power connector 108 and the data connector 110 are contained in the cradle assembly 104, and these connectors offer the power connection and data connection with the digital camera 102 during a recharge, data transfer, and speech recognition processing. Instead, connection of the power connector 108 and the data connector 110 is combinable with a single connector.

[0006] Power is supplied to the power connector 108 by power 112 through a power cable 114. Power 112 can be considered as wall tapestry equipment, an automobile power adapter, or cell formula equipment. Data can be transmitted through the data cable 116 connected to the data connector 110, and the data cable 116 offers the communication connection with communication devices, such as the radio system 120, the cable modem 122, the unsymmetrical digital subscriber's-line (ADSL) modem 124, a local area network and an interface device 126, the ISDN (ISDN) interface device 128, or the voice circuit modem 130. The modem and radio transceiver which were connected to the radio network in communication are contained in the radio system 120. Recharge processing and data transfer processing are performed, when a camera is returned to a cradle, after taking a photograph.

[0007] As for this invention, it is advantageous that it is separated from the final destination of the taken photograph while the user of a camera is traveling etc. especially when using it for remote data transfer. For example, a hotel can provide a visitor with the cradle assembly 104 as either of the services which need the service or surcharge contained in accommodation charges. By this, when a visitor returns to the cella, a photograph [finishing / photography] can be transmitted. With some speed of the connection offered, a transfer of a photograph may become processing which time requires. Data transfer can be attained, when convenient, while the user of a camera is sleeping by forming a cradle in the cella of a hotel.

[0008] As another example, the cradle assembly 104 and the radio system 120 can be formed in

automobiles, such as a camera user's automobile, or a rental car. Many rental cars have an usable wireless telephone in a loan. The cradle assembly 104 can be lent out to a convenient thing simultaneously with it. By forming the cradle assembly 104, the convenient data transfer under travel becomes possible. A camera user returns to an automobile, puts a camera on a cradle, and drives to the next destination. Data can be transmitted, while an user is not in in the car, when it is transmitted while the user is driving to the convenient thing, or sufficient security is prepared.

[0009] In the one embodiment, the radio system 120, the cable modem 122, ADSL Modem 124, a local area network and an interface device 126, the ISDN interface device 128, and the voice circuit modem 130 offer the direct access to the computer system or the server (below, the destination system is called) 132 of the destination through internet 134. The destination system 132 is usually the program formula computer system of common knowledge, such as a personal computer, a work station, a minicomputer, and a mainframe. Such computer system usually executes the computer and program instruction carried out within computer-readable mediums, such as RAM, ROM, a flash memory, a floppy disk, a hard disk, an optical disk, and a magnetic tape, as everyone knows.

[0010] In another embodiment, the radio system 120, the cable modem 122, ADSL Modem 124, a local area network and an interface device 126, the ISDN interface device 128, and the voice circuit modem 130 offer the access to Intermediate System 136. An Intermediate System can be made into a server or the computer system of other common knowledge, and it is used for improving the facilities and speed of data transfer from the digital camera 102. For example, the cradle assembly which a hotel offers is connectable with an interval server system through a local area network. Data can be transmitted to an interval server system from a camera at high speed, and can be transmitted to a destination system in good type in all after that.

[0011] As another example, many automobiles come to equip computer system at the future. Data can be transmitted to automobile computer system from a camera at high speed, and can be transmitted to a destination system in good type in all after that. By this, a camera user can transmit data now quickly from a camera, and can take more photographs now. Automobile computer system can transmit data, while the user is continuing use of a camera after that.

[0012] Instead, it is possible not to use a cradle 106. Instead of a cradle, the power connector 108 and the data connector 110 are directly connectable with the digital camera 102. It can connect separately or these connectors can be combined with a single assembly.

[0013] The digital camera 102 by this invention is shown in drawing 2. The image sensing equipment 201 is included, and this image sensing equipment 201 accepts the light containing an image in the digital camera 102, and outputs the digital image data showing the image to it. The lens 202 which doubles the focus of an image with the picture image sensor 204 is usually contained in the image sensing equipment 201. Although the picture image sensor 204 is usually charge coupled devices (CCD) or a complementary-type metal-oxide-semiconductor (CMOS) device, the signal showing a picture image is outputted to A/D converter 206, and by digitizing the signal, A/D converter 206 is changed into digital image data, and outputs digital image data to a microprocessor 208. The voice sensing equipment 209 is also included, and this voice sensing equipment 209 accepts voice, such as utterance, in the digital camera 102, and outputs the digital voice data showing the voice to it. The signal with which a microphone 210 senses the voice which is the usually uttered word, and the sensed voice is expressed is outputted to A/D converter 212, and this A/D converter 212 digitizes the signal, and outputs digital voice data to a microprocessor 208. A microprocessor 208 memorizes digital image data and digital voice data in memory 214. Memory 214 is usually semiconductor memory, such as RAM and a flash memory. Memory 214 can be considered as the hard drive which can include in the digital camera 102, can make [of a flash memory card etc. / which can be removed] memory 214 nonvolatile, and was attached in the inside of disk storages, such as a floppy disk or other storage driving gears which can be removed, and the digital camera 102, or this.

[0014] The input / output adapter 216 containing the connector 217 for the data transfer between the cameras through the data connector 110 and the data cable 116 is contained in the digital camera 102. A cell, adjustment and a recharge circuit, and the power 218 containing a

connector 219 are also contained in the digital camera 102. Power can be supplied now to the digital camera 102 by power 112 through the power cable 114 and the power connector 108 with this. The components of other common knowledge, such as a viewfinder and a shutter switch, are not illustrated.

[0015] A microprocessor 208 memorizes each image data of the taken photograph to the image data and the block 220 in memory 214. Usually, the image data within image data and the block 220 is compressed in order to save a room. A microprocessor 208 is memorized to the voice data and the block 222 which had recorded voice (utterance) data relevant to each of the memorized picture image recorded. Usually, the recorded voice data is also compressed. The text data relevant to each of the memorized picture image are also memorized by the text comment data block 223 as which it has been recognized in memory 214. Speech recognition can be performed by the voice recognition unit 224 using the speech recognition data 225, and speech recognition can be performed by the microprocessor 208 which performs the speech recognition routine 226 using the speech recognition data 225.

[0016] The software routine performed by the microprocessor 208 is also contained in the digital camera 102. A picture image / voice taking-in routine 228 controls compression of the data within photography of a digital photograph, the recording of a voice comment, image data and a block 220, and the voice data and the block 222 that were recorded, and processing of storage. The speech recognition routine 226 controls processing of storage of a recognition of the voice comment memorized by the recorded voice data and the block 222, and the text comment to the text comment data block 223 the text comment has been generated and recognized to be.

[0017] Connection / data transfer routine 230 controls processing of the data transfer from the digital camera 102 which uses connection / data transfer data 232. The data used for an establishment of the connection with the destination system 132, Intermediate System 136, or its both are contained in connection / data transfer data 232. For example, identification of the access telephone number, and internet and a service-provision contractor (ISP), ISP account number, a password, Internet Protocol (IP) or other network addresses, an e-mail address, URL (Uniform Resource Locator), a directory and a pathname, the credit card account number, etc. can be included in connection / data transfer data 232. A command script etc. can also include the data for controlling connection and processing of data transfer in connection / data transfer data 232.

[0018] An user can input connection / data transfer data 232, or they can be constituted automatically. For example, an user can input the access telephone number, ISP account number, the destination system address, etc. An user can use the voice command recognized by the speech recognition fraction of a camera, using the configuration program it runs by the computer system connected to the camera, using control of a camera and a menu, and can input data. This configuration can be made flexible according to a wish. For example, an user can input the destination which is different about the group of every photograph and a photograph, and an user can input two or more destinations. An user can specify transmitting all photographs to the computer system of an user's home, carrying out electronic mail of the photograph of the different selected group to the person as whom others were chosen.

[0019] Instead, the service-provision contractor who manages the vendor or Intermediate System of a camera can transmit connection / data transfer data 232 to a camera, and can constitute connection and data transfer. Connection / data transfer data 232 is usually memorized by RAM or non-volatile memory of the digital camera 102.

[0020] Usually, although the speech recognition routine 226, the picture image / voice taking-in routine 228, and the connection / data transfer routine 230 are memorized by computer-readable mediums, such as non-volatile memory, such as ROM and a flash memory, instead, it is memorizable to other computer-readable mediums, such as RAM, a floppy disk, a hard disk, an optical disk, and a magnetic tape.

[0021] The digital camera system 100 is operated in the type shown in drawing 3 . At step 302, a camera is removed from a cradle 106. At step 304, one or more photographs are taken using a camera, and one or more voice comments are recorded. In order for a microprocessor 208 to take a photograph of each of a photograph, to compress image data and to memorize image data

to the image data and the block 220 of memory 214, it performs a picture image / voice taking—in routine 228. Similarly, a microprocessor 208 records each of a voice comment, compresses voice data, and in order to memorize voice data to the voice data and the block 222 with which memory 214 was recorded, it performs a picture image / voice taking—in routine 228.

[0022] The digital camera 102 is applicable to photography of a photograph, and the recording of a voice comment to a completion of a photography session. In the ground which a photography session completes, the cell charge to which memory 214 filled decreased, or an user is able to finish taking a desired photograph to it. At the time of a completion of a session, at step 306, the digital camera 102 is put on a cradle 106, and both the power connector 108 and the data connector 110 are connected to the digital camera 102 by this. When not using a cradle 106, you have to connect the power connector 108 and the data connector 110 to the digital camera 102.

[0023] A microprocessor 208 detects that the digital camera 102 was connected to the external communication device. Either of the well-known technique can attain this detection. For example, an input / output adapter 216 can detect presence of the data signal on a connector 217, and can send a signal to a microprocessor 208. The technique of other common knowledge can also be used.

[0024] When it detects that the digital camera 102 was connected to the external communication device, a microprocessor 208 performs connection / data transfer routine 230 at step 308, in order to establish the communication connection through the internet with the destination system 132. It depends for the detail of connection processing on the concrete modality of external communication device in use. Communication connection is established using the connection / data transfer data 232 which can contain the IP address of the destination system 132 and sign-on script, a password, a transfer destination directory, etc.

[0025] When a connection step is completed, a microprocessor 208 transmits the image data and text data which were memorized to the destination system 132 at step 310. This transfer can be performed by using standard transfer protocols, such as a well-known file transfer protocol (FTP). When a transfer is completed, the communication connection between the digital camera 102 and the destination system 132 is ended automatically. Furthermore, after transmitting image data and text data, they can be deleted from memory 214 and can release memory because of reuse.

[0026] When data transfer is not successful or communication connection is lost, the digital camera 102 re-establishes connection automatically, and repeats whether a transfer is resumed.

[0027] It is included in the characteristic feature of an addition of this invention that a camera user can specify now processing of image data, text data, and voice data for every photograph. For example, an user can specify whether the text data or voice data relevant to the photograph to transmit is transmitted. Furthermore, an user can specify whether the transmitted data are deleted from memory 214. If another characteristic feature is used, an user can specify the threshold of the number of sheets of the photograph memorized by memory 214. When a number fewer than a threshold of photographs are memorized by memory 214, the attempt which is going to transmit the image data, the text data, or voice data of the photograph is not performed.

[0028] The example of a format of the data memorized by memory 214 is shown in drawing 4. In this example, the image data from each taken photograph is memorized as a block of image data. For example, the image data from a photograph 1 is memorized by block 402, and the image data from photograph N is memorized by block 404. All blocks 402 of image data or 404 is memorized continuously. The recorded voice data relevant to each of the taken photograph is memorized as a block of the recorded voice data. For example, the voice data recorded from the voice comment relevant to a photograph 1 is memorized by block 406, and the voice data recorded from the voice comment relevant to photograph N is memorized by block 408. All blocks 406 of the recorded voice data or 408 is memorized continuously. The changed text comment data relevant to each of the taken photograph are memorized as a block of text data. For example, the changed text comment data relevant to a photograph 1 are memorized by block 410, and the changed text comment data relevant to photograph N are memorized by block 412. All blocks

410 of the changed text comment data or 412 is memorized continuously.

[0029] A format of another example of the data memorized by memory 214 is shown in drawing 5. The image data from each photograph, the recorded voice data relevant to each photograph, and the changed text comment data relevant to each photograph are memorized as a block of data like drawing 4, respectively. For example, the image data from a photograph 1 is memorized as block 502, the recorded voice data relevant to a photograph 1 is memorized as block 504, and the changed text data relevant to a photograph 1 are memorized as block 506. However, in this example, the image data from a photograph is continuously remembered to be the recorded voice data and the changed text data relevant to the photograph. Therefore, as for blocks 502, 504, and 506, all are continuously memorized in relation to a photograph 1. Similarly, as for blocks 508, 510, and 512, all are continuously memorized in relation to photograph N.

[0030] Drawing 4 and drawing 5 are only two of the examples of the data-storage format which can be used. All formats of the others which maintain the relation between image data, the recorded voice data, and the changed text data are usable similarly. For example, a well-known file system can be used.

[0031] As a conclusion, the following matters are indicated about the configuration of this invention.

[0032] (1) The digital camera contain the I/O adapter which can operate so that the light containing a picture image accepts, the communication connection by the memory which can operate, and the destination system which detects that the connection with a network was established and minds the aforementioned network is established so that it may remember that the picture image sensing equipment which can operate, and the aforementioned image data output the image data showing the aforementioned picture image, and the image data by which storage was carried out [aforementioned] may transmit to the aforementioned destination system.

(2) A digital camera given in the above (1) whose aforementioned network is internet.

(3) A digital camera given in the above (2) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(4) A digital camera given in the above (2) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(5) Further, receive sound, and the sound sensing equipment which can operate is included so that the sound data showing the aforementioned sound may be outputted. The aforementioned sound is utterance and the aforementioned sound data are voice data. further A digital camera given in the above (2) which can transmit the voice data with which the storage of the aforementioned input / output adapter was further carried out [aforementioned] including the 2nd memory which can operate so that the aforementioned voice data might be memorized to the aforementioned destination system.

(6) A digital camera given in the above (2) provided with external power connection and communication connection by the cradle assembly.

(7) The technique for operating a digital camera containing the step which outputs the image data which accepts the light containing a picture image and expresses the aforementioned picture image, the step which memorizes the aforementioned image data, the step which detect that the connection with a network was established, the step which establish the communication connection with the destination system through the aforementioned network, and the step which transmit the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(8) Technique given in the above (7) whose aforementioned network is internet.

(9) Technique given in the above (8) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(10) Technique given in the above (8) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an

Intermediate System.

(11) Technique given in the above (8) which contains further the step which receives sound, the step which outputs the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the step which memorizes the aforementioned voice data, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

(12) Technique given in the above (8) provided with external power connection and communication connection by the cradle assembly.

(13) The digital camera containing the means for outputting the image data which accepts the light containing a picture image and expresses the aforementioned picture image, the means for memorizing the aforementioned image data, the means for detecting that the connection with a network was established, the means for establishing the communication connection with the destination system through the aforementioned network, and the means for transmitting the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(14) A digital camera given in the above (13) whose aforementioned network is internet.

(15) A digital camera given in the above (14) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(16) A digital camera given in the above (14) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(17) A digital camera given in the above (14) which includes further the means for receiving sound, the means for outputting the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the means for memorizing the aforementioned voice data, and the means for transmitting the voice data by which storage was carried out [aforementioned] to the aforementioned destination system.

(18) A digital camera given in the above (14) provided with external power connection and communication connection by the cradle assembly.

(19) Kept on record on the computer-readable medium and the aforementioned computer-readable medium. The computer and program instruction which can be executed by the processor of a digital camera are included. The step to which the image data to which aforementioned computer and program instruction make the light containing a picture image accepted in the aforementioned digital camera, and expresses the aforementioned picture image with it is made to output, The step which memorizes the aforementioned image data, and the step which detects that the connection with a network was established, The computer program product for operating a digital camera which it is for performing the step which establishes the communication connection with the destination system through the aforementioned network, and the step which transmits the image data by which storage was carried out [aforementioned] to the aforementioned destination system.

(20) A computer program product given in the above (19) whose aforementioned network is internet.

(21) A computer program product given in the above (20) by which the aforementioned connection with the aforementioned network is established through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(22) A computer program product given in the above (20) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(23) A computer program product given in the above (20) which contains further the computer and program instruction for performing the step which receives sound, the step which outputs the sound data showing the aforementioned sound whose sound data the aforementioned sound is utterance and are voice data, the step which memorizes the aforementioned voice data, and the step which transmits the voice data by which storage was carried out [aforementioned] to

the aforementioned destination system.

(24) A computer program product given in the above (20) provided with external power connection and communication connection by the cradle assembly.

(25) Computer system which includes the equipment which can operate so that the image data by which storage was carried out [aforementioned] from the equipment which can operate, and the aforementioned digital camera may be received so that the communication connection through the network with the digital camera memorized in it in image data may be established.

(26) Computer system given in the above (25) whose aforementioned network is internet.

(27) Computer system given in the above (26) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(28) Computer system given in the above (26) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(29) Computer system given in the above (26) whose aforementioned digital camera includes the equipment which can operate so that the voice data with which voice data were memorized in it and the storage of the aforementioned computer system was further carried out [aforementioned] from the aforementioned digital camera may be received.

(30) Computer system given in the above (26) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(31) How to operate the computer system connected to the aforementioned network containing the step which establishes the communication connection which minds in it the network with the digital camera which had image data memorized, and the step which receives the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(32) Technique given in the above (31) whose aforementioned network is internet.

(33) Technique given in the above (32) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(34) Technique given in the above (32) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(35) Technique given in the above (32) whose aforementioned digital camera contains the step which receives the voice data with which voice data were memorized in it and the storage of the aforementioned technique was further carried out [aforementioned] from the aforementioned digital camera.

(36) Technique given in the above (32) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(37) Computer system containing the means for establishing the communication connection which minds in it the network with the digital camera which had image data memorized, and the means for receiving the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(38) Computer system given in the above (37) whose aforementioned network is internet.

(39) Computer system given in the above (38) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(40) Computer system given in the above (38) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(41) Computer system given in the above (38) containing the means for the aforementioned digital camera receiving the voice data with which voice data were further memorized in it, and the storage of the aforementioned computer system was further carried out [aforementioned] from the aforementioned digital camera.

(42) Technique given in the above (38) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(43) The computer-readable medium and the aforementioned computer-readable medium kept on record. The computer and program instruction which can be executed by the processor in a digital camera are included. The step which establishes the communication connection whose

(21)

aforementioned computer and program instruction mind in it the network with the digital camera which had image data memorized, The computer program product for operating the computer system connected to the network which it is for performing the step which receives the image data by which storage was carried out [aforementioned] from the aforementioned digital camera.

(44) A computer program product given in the above (43) whose aforementioned network is internet.

(45) A computer program product given in the above (44) to which the aforementioned digital camera is connected to the aforementioned network through a radio system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(46) A computer program product given in the above (44) by which the image data by which storage was carried out [aforementioned] is received through an Intermediate System.

(47) A computer program product given in the above (44) containing the computer and program instruction for the aforementioned digital camera performing the step which receives the voice data with which voice data were further memorized in it, and the storage of the aforementioned computer program product was further carried out [aforementioned] from the aforementioned digital camera.

(48) A computer program product given in the above (44) to which the aforementioned digital camera is provided with external power connection and communication connection by the cradle assembly.

(49) The automobile which includes the equipment which can operate in destination computer system through the aforementioned network from the equipment which can operate, and the aforementioned digital camera so that the image data by which storage was carried out [aforementioned] may be transmitted so that the digital camera which had image data memorized in it may be provided with power connection and communication connection and the communication connection between the equipment which can operate, and the aforementioned digital camera and a network may be established.

(50) An automobile given in the above (49) whose aforementioned network is internet.

(51) An automobile given in the above (50) whose aforementioned equipment which can operate is a radio structure-of-a-system element as the image data by which storage was carried out [aforementioned] is transmitted to destination computer system through the aforementioned network from the aforementioned equipment which can operate, and the aforementioned digital camera so that the communication connection between the aforementioned digital camera and a network may be established.

(52) An automobile given in the above (50) whose aforementioned equipment which can operate contains interval computer system so that the image data by which storage was carried out [aforementioned] may be transmitted to destination computer system through the aforementioned network from the aforementioned digital camera.

(53) An automobile given in the above (50) whose aforementioned digital camera has voice data memorized in it, and it includes further the equipment which can operate so that the aforementioned automobile may transmit further the voice data by which storage was carried out [aforementioned] to destination computer system through the aforementioned network from the aforementioned digital camera.

(54) An automobile given in the above (50) whose aforementioned equipment which can operate includes cradle assembling so that the aforementioned digital camera may be provided with power connection and communication connection.

(55) The automobile which includes the means for transmitting the image data by which storage was carried out [aforementioned] at destination computer system through the aforementioned digital camera to the means for providing with power connection and communication connection the digital camera which had image data memorized in it, the means for establishing the communication connection between the aforementioned digital camera and a network, and the aforementioned network.

(56) An automobile given in the above (49) whose aforementioned network is internet.

(57) An automobile given in the above (50) the aforementioned means for establishing the

communication connection between the aforementioned digital camera and a network and whose aforementioned means for transmitting the image data by which storage was carried out [aforementioned] to destination computer system through the aforementioned network from the aforementioned digital camera are radio structure-of-a-system elements.

(58) An automobile given in the above (50) whose aforementioned means for transmitting the image data by which storage was carried out [aforementioned] contains interval computer system in destination computer system through the aforementioned network from the aforementioned digital camera.

(59) An automobile given in the above (50) whose aforementioned automobile the aforementioned digital camera has voice data memorized in it, and includes further the means for transmitting the voice data by which storage was carried out [aforementioned] in destination computer system through the aforementioned digital camera to the aforementioned network.

(60) An automobile given in the above (50) whose aforementioned means for offering power connection and communication connection includes a cradle assembly in the aforementioned digital camera.

(61) The step to which the image data which is made to accept the light containing a picture image in a digital camera, and expresses the aforementioned picture image with it is made to output, The step which memorizes the aforementioned image data within the aforementioned digital camera, The step which detects that the connection with a network was established from the aforementioned digital camera, The step which establishes the communication connection through the aforementioned network between the aforementioned digital camera and destination computer system, The step which transmits the image data by which storage was carried out [aforementioned] from the aforementioned digital camera to the aforementioned destination computer system, The digital photograph containing the image data memorized by aforementioned destination computer made by performing the step which memorizes the image data by which the reception was carried out [aforementioned] by the aforementioned destination computer system.

(62) A digital photograph given in the above (61) whose aforementioned network is internet.

(63) A digital photograph given in the above (62) by which the aforementioned connection with the aforementioned network is established through communication system, a cable modem, the unsymmetrical digital subscriber's line, a local area network, an ISDN, or a voice circuit.

(64) A digital photograph given in the above (62) to which the image data by which storage was carried out [aforementioned] is transmitted to the aforementioned destination system through an Intermediate System.

(65) The step which receives sound using the aforementioned digital camera, The step which outputs the sound data showing the aforementioned voice whose sound data the aforementioned sound is utterance and are voice data, The step which memorizes the aforementioned voice data with the aforementioned digital camera, and the step which transmits the voice data by which storage was carried out [aforementioned] to the aforementioned destination system from the aforementioned digital camera, A digital photograph given in the above (62) made by performing further the step which memorizes the voice data which carried out [aforementioned] the reception by the aforementioned destination computer system.

(66) A digital photograph given in the above (62) provided with external power connection and communication connection by the cradle assembly.

[Translation done.]

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DESCRIPTION OF DRAWINGS

[An easy explanation of a drawing]

[Drawing 1] It is drawing showing the digital camera system 100 by this invention.

[Drawing 2] It is the block diagram of the example of the digital camera shown in drawing 1.

[Drawing 3] It is the flow chart of processing of an operation of the system shown in drawing 1.

[Drawing 4] It is drawing showing the example of a format of the data memorized by the memory shown in drawing 2.

[Drawing 5] It is drawing showing the example of another format of the data memorized by the memory shown in drawing 2.

[An explanation of a sign]

100 Digital Camera System

102 Digital Camera

104 Cradle Assembly

106 Cradle

108 Power Connector

110 Data Connector

112 Power

114 Power Cable

116 Data Cable

120 Radio System

122 Cable Modem

124 Unsymmetrical Digital Subscriber's-Line (ADSL) Modem

126 Local Area Network and Interface Device

128 ISDN (ISDN) Interface Device

130 Voice Circuit Modem

132 Computer System or Server (Destination System) of Destination

134 Internet

136 Intermediate System

[Translation done.]

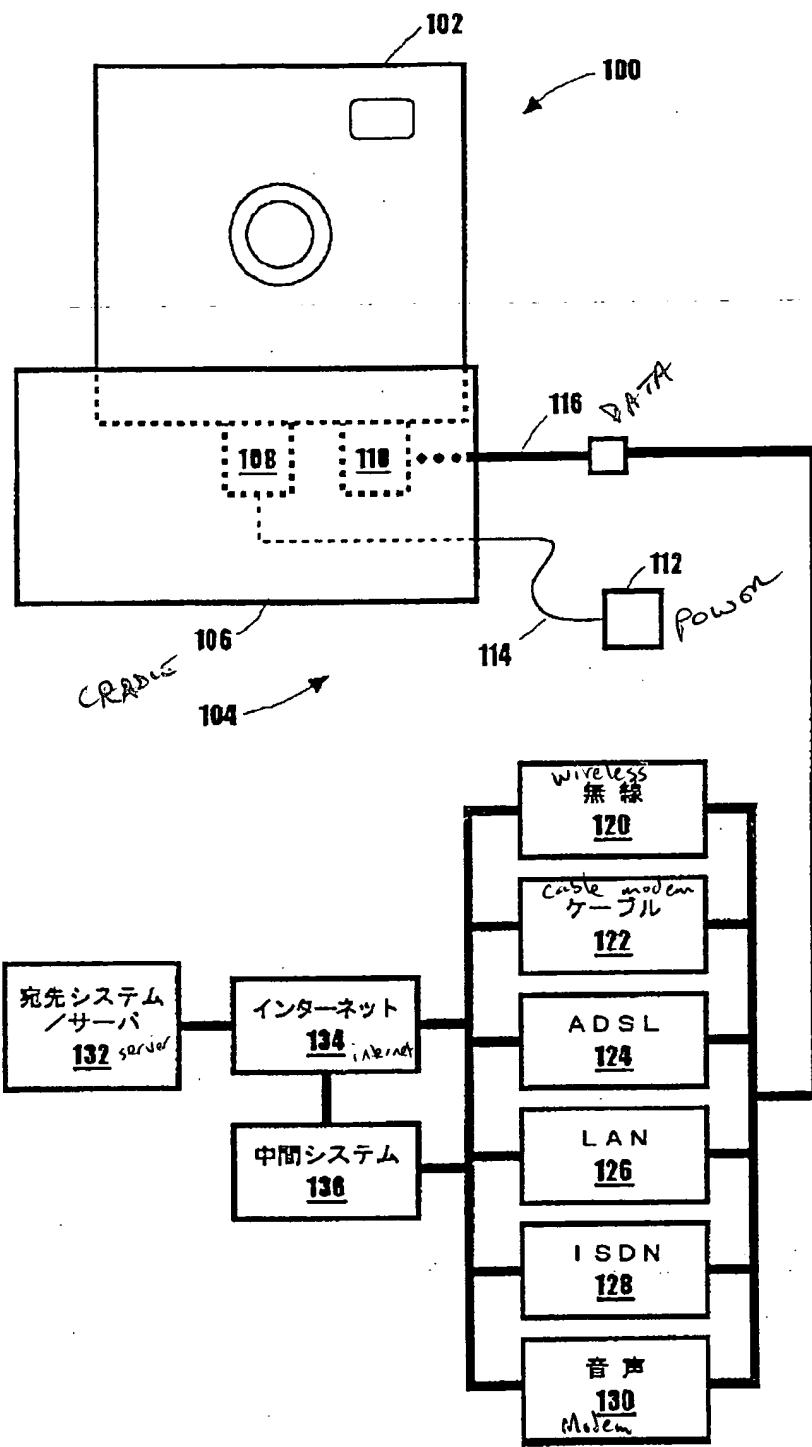
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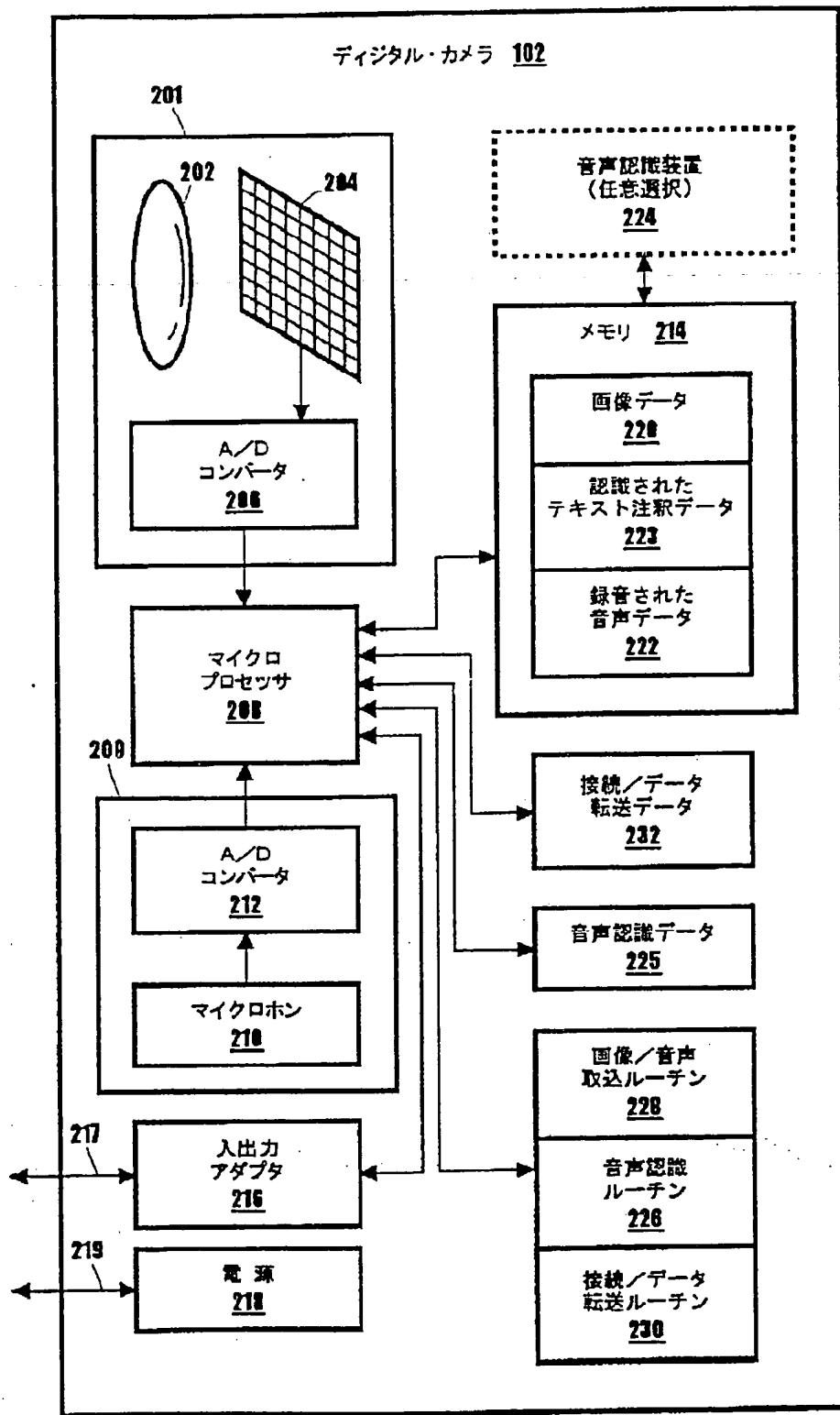
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DRAWINGS

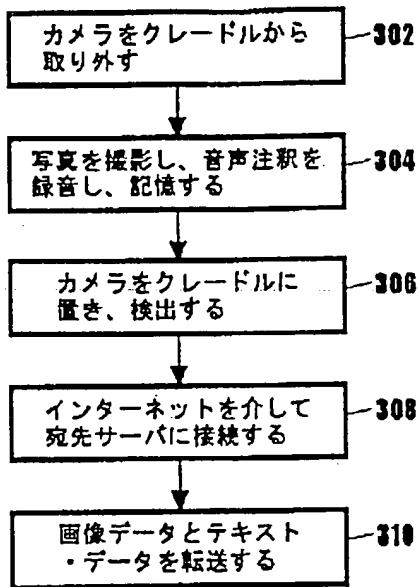
[Drawing 1]



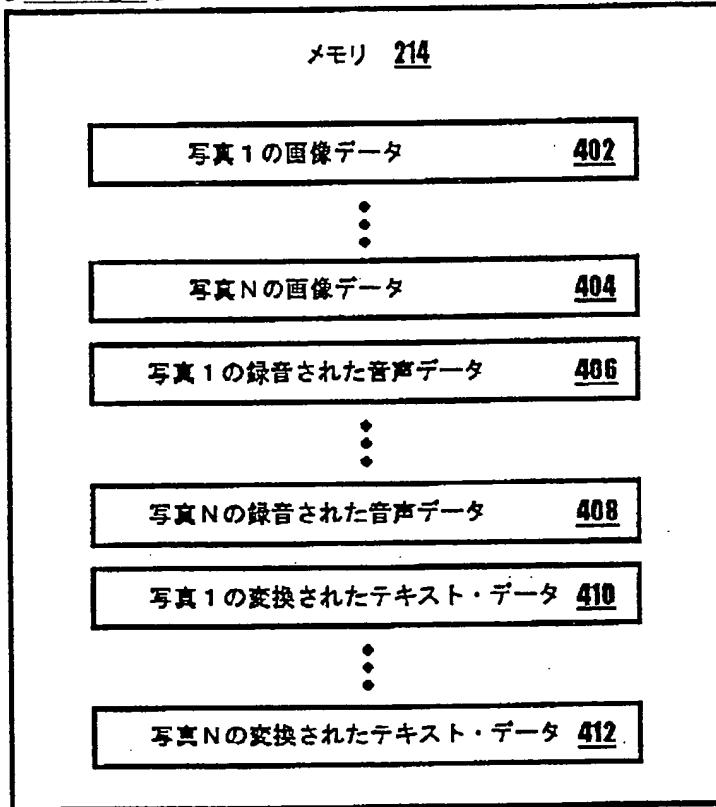
[Drawing 2]



[Drawing 3]



[Drawing 4]



[Drawing 5]

メモリ 214

写真1の画像データ	<u>502</u>
写真1の録音された音声データ	<u>504</u>
写真1の変換されたテキスト・データ	<u>506</u>

⋮

写真Nの画像データ	<u>508</u>
写真Nの録音された音声データ	<u>510</u>
写真Nの変換されたテキスト・データ	<u>512</u>

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